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Studies of Nicotine Action upon Memory Consolidation. Grant #623-A

The purpose of the research project is to assess the possible role of nicotine in determining the temporal character of memory consolidation in experimental animals. These experiments represent an attempt to relate the effects of nicotine in the central nervous system to behavioral processes dependent upon such central events. Specifically, the effect of nicotine upon brain amine concentration and turnover will be related to the process of memory consolidation (the process by which the memory trace becomes fixated in the central nervous system; this may be empirically defined in terms of the time interval following learning within which memory for an acquired event may be disrupted by externally presented agents and/or events.) Since previous work in this laboratory has shown that the temporal course of memory consolidation may be lengthened or shortened, depending upon changes in brain amine levels, specifically serotonin, the present studies are based upon the assumption that nicotine-induced changes in brain amine levels will serve as a basis for faciliatated memory consolidation. The parameters to be considered are nicotine dosage and the intensity of the amnesic event, which for present experiments will be electroconvulsive shock. A one-trial conditioning technique will be utilized to establish a passive avoidance response, the retention of which will be tested, based upon the interaction of the effects of nicotine and electro-convulsive shock upon the central nervous system and upon memory consolidation as defined by the behavioral method employed.

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